

A NEW LORICATE FROM NORTH QUEENSLAND.

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(Plate xviii.)

During exceptionally low tides in September, 1931, the area outside the shark fence at Alma Bay, Magnetic Island, North Queensland, was examined for loricates. Amongst a number of specimens were some which appeared to be juveniles of *Onithochiton quercinus* Gould. More critical examination later established the fact that they differed from *O. quercinus* in the possession of a scaly girdle and a distinctive radula, together with modified insertion plates. It is necessary therefore to introduce a new genus for their reception.

Order LORICATA Schumacher, 1817.

Family CHITONIDAE.

Genus ONITHELLA *gen. nov.* Type *O. helenae* *sp. nov.*

Definition, shells small, elevated, subcarinate, of bright colouring, general features as in *Onithochiton*, but minute scales replace spicules in girdle, insertion plates short, being faintly striate in head valve, smooth in median valves, and replaced by callus in tail valve, radula distinctive from *Onithochiton*.

In *Onithochiton* Gray, 1847, the insertion plates are long and deeply pectinate in head and median valves. The girdle armament consists of spines (*vide infra*).

The proposed new genus differs from *Lucilina* Dall, 1881, in its depressed tail valve, with replacement of insertion plate by callus, in girdle armament, and in its insertion plates.

ONITHELLA HELENÆ *sp. nov.*

Type and paratype in National Museum, Melbourne.

Shell small, narrow oval, elevated, subcarinate, slightly beaked.

Colour rose pink, flecked with white, tail valve edged in black (type), others rose or amber, flecked with white and with black markings on valves 2 and 8.

Head valve smooth and unsculptured, except eight or nine ill-defined scanty radial rows of large ocelli.

Median valves, lateral areas raised and smooth, except for faint radial depression, in which lies a scanty row of ocelli. Older shells show concentric growth line. Pleural area is sculptured in its posterior portion, with five to eight longitudinal sulcations, which become shorter as they approach the jugum. The jugal area is smooth and terminates posteriorly in a short beak.

Tail valve small, triangular, depressed, mucro terminal.

Postmucronal area represented by a small ridge with a single row of ocelli. Antemucronal area sculptured faintly as in pleural areas of median valves.

Girdle relatively narrow. Covered with minute elongate striated scales (about 20 μ wide) amongst which may be seen an occasional slender spicule.

Interior pink. Slits 8-1-0. Insertion plates short, faintly pectinate in head valve, smooth in median valves, replaced by callus in tail valve. Sutural laminae small. Jugal sinus deep. Laminae united by barely visible coarsely toothed bridge.

Fig. 15a. Two teeth from the head valve of *Onithochiton quercinus* Gould, seen from the interior, x 40.

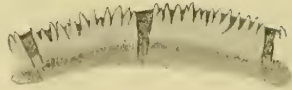


Fig. 15a.

Fig. 15b. Two teeth from the head valve of *Onithella helenae*, seen from the interior, x 40.

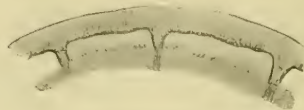


Fig. 15b.

Fig. 16a. Lateral margin of valve iv. of *Onithochiton quercinus* Gould, seen from interior, x 40.

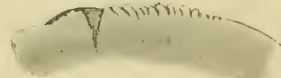


Fig. 16a.

Fig. 16b. Lateral margin of valve iv. of *Onithella helenae*, seen from interior, x 40.

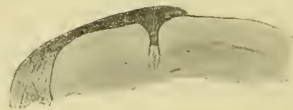


Fig. 16b.

Note.—Both shells were 9 mm. in length. In each case the valve was placed with the plates in the horizontal plane so that the teeth are viewed from the same angle in each figure. In *O. quercinus* the teeth are long and so deeply pectinated that each plate ends in needle points. The tegmentum is just visible at intervals. In *O. helenae* the teeth are short and smooth at the apex. The obsolete pectination which is present on the external surface is not visible. The tegmentum everywhere heavily overlaps the articulamentum.

Radula distinctive from that of *O. quercinus* notably in shape of second lateral.

Station: Under small stones fixed between granite boulders below low water at lowest tides.

Habitat: North Queensland coast from Fantome Island, Palm Group, to South Keppel Island, Keppel Bay. Type locality: Alma Bay, Magnetic Island.

Dimensions: Type 10 mm., maximum 11 mm.

Remarks: Similarity to *Onithochiton ashbyi* Bed. & Matt. led to critical examination of the latter. This reveals that the supposed horny girdle is also covered with minute striated scales of similar appearance, but one-third the size (width about $6-7\mu$). The insertion plates and radula of *O. ashbyi* agree with that of the new shell, and therefore *O. ashbyi* should be classed in genus *Onithella*.

The common Australian *Onithochiton* is *O. quercinus* Gould, in the synonymy of which we may include *O. scholvi* Thiele and *O. rugulosus* Pilsbry.* The girdle of this species consists of fine spines, which are normally separated in the fully spread girdle. In shrunken specimens the spines appear to be closely set, and they are usually figured thus. Three kinds of spinous processes are present.

* Iredale and Hull followed this course in their Monograph.

1. Slender curved delicate glassy spicules scattered sparsely over the surface.

2. Thicker tapering glassy spines with faint longitudinal striation, both clear and amber coloured.

3. Milky white bottle shaped spines, with slightly curved glassy transparent necks, ending in a sharp point and not striated.

The girdle is thickly set with 2 and 3, which commonly occur in groups, giving a banded or mottled appearance. The milky whiteness becomes granular and opaque to transmitted light.

Study of growth stages shows that the youngest spines are striated at the apices, suggesting that spines have been evolved from scales.

In *Onithella* the scales persist, although scattered and non-imbricate. In *Onithochiton* and *Lucilina* they develop into spicules.

This shell is named in honour of the author's wife, in partial acknowledgment of her enthusiastic help.

Note on the Radula.

In the conventional figuring of one-half of a radular row (Figs. 14 a, b, c, d), the three genera *Onithochiton*, *Lucilina* and *Onithella* appear to have the common feature of a second lateral tooth with four cusps. When viewed from this angle there appears to be little difference between the four species figured as regards the second lateral.

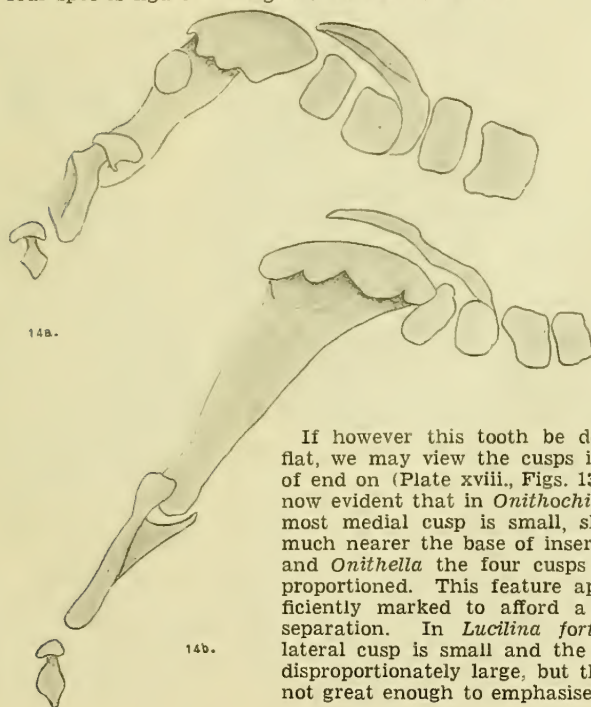


Fig. 14a. Half a radular row of *Onithochiton quercinus* Gould, x 110.

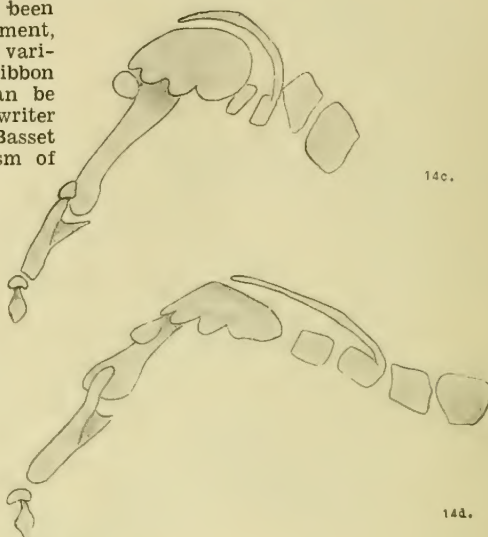
Fig. 14b. Half a radular row of *Lucilina fortilirata* Reeve, x 225.

If however this tooth be detached and laid flat, we may view the cusps in outline instead of end on (Plate xviii, Figs. 13a, b, c, d). It is now evident that in *Onithochiton quercinus* the most medial cusp is small, sharp, and placed much nearer the base of insertion. In *Lucilina* and *Onithella* the four cusps are more evenly proportioned. This feature appears to be sufficiently marked to afford a ready means of separation. In *Lucilina fortilirata* the most lateral cusp is small and the two central ones disproportionately large, but the differences are not great enough to emphasise at present.

Some differences have been noted in the minor armament, but as these are somewhat variable in the same radular ribbon no certain distinctions can be drawn at present. The writer is indebted to Mr. A. F. Basset Hull for a helpful criticism of the note on the radula.

Fig. 14c. Half a radular row of *Onithella helenae*, x 225.

Fig. 14d. Half a radular row of *Onithella ashbyi* Bed. & Matt., x 225.



Explanation of Plate xviii.

- Fig. 1. *Onithella helenae*. Whole shell x 9 (type).
- " 2. *Onithella helenae*. Head valve from above x 13 (paratype).
- " 3. *Onithella helenae*. Head valve from side x 13 (paratype).
- " 4. *Onithella helenae*. Head valve interior x 13 (paratype).
- " 5. *Onithella helenae*. Median valve (5) from above x 13 (paratype).
- " 6. *Onithella helenae*. Median valve (5) interior x 13 (paratype).
- " 7. *Onithella helenae*. Tail valve from above x 13 (paratype).
- " 8. *Onithella helenae*. Tail valve from side x 13 (paratype).
- " 9. *Onithella helenae*. Tail valve interior x 13 (paratype).
- " 10. *Onithella helenae*. Girdle scales x 480 (approx.) (paratype).
- " 11. *Onithochiton quercinus* Gould. Girdle spines x 77 (approx.).
- " 12. a, b, c. *Onithochiton quercinus* Gould. Girdle spines x 480 (approx.).
- " 13a. *Onithochiton quercinus* Gould. Second lateral tooth of radula detached and laid flat.
- " 13b. *Onithella helenae* Gould. Second lateral tooth of radula detached and laid flat.
- " 13c. *Lucilina fortilirata* Reeve. Second lateral tooth of radula detached and laid flat.

(In Figs. 13a, b., and c. the midline is towards the left.)

The writer is indebted to Miss Joyce K. Allan, of the Australian Museum, for a beautiful drawing of the type. (Figs. 2-13 by author.)

(Figs. 11 and 12 drawn from juvenile of 13 mm. length.)